Lorenz® messtechnik gmbh

Miniature Compression Force Sensor K-13/K-13B with Nominal Force from 0.01 ... 100 kN

Data sheet



Performance Features

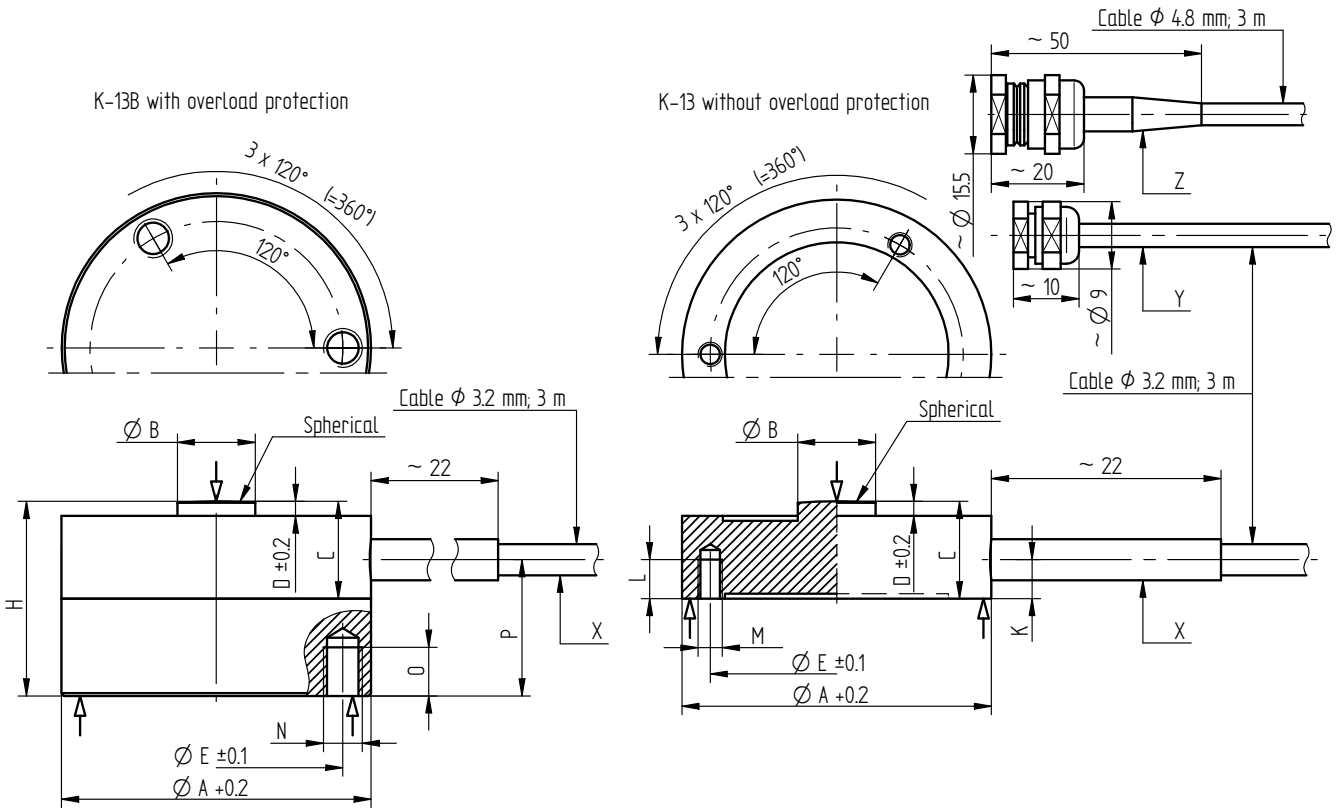
- Miniature sensor for press-in force survey
- K-13B with integrated overload protection
- Simple handling and assembly
- Stainless steel
- Level of protection IP65 [≤50 N; IP60]
- Long-term stability
- Special versions on request

Application

- Equipment engineering
- Fully automated machining centres
- Measuring and control devices
- Materials testing machines
- Tool engineering
- Special mechanical engineering

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Dimensions of K-13B / K-13 in mm



Article-No. K-13B	Nominal Force [kN]	Dimensions [mm]											Overload Protection	Weight [kg]
		ØA	ØB	C	D	ØE	H	N	O	P	X	Y	Z	
103789	0.01	32	8	10	1.5	26	20	M4	5	14	X	-	-	5 x	0.3
103790	0.02														
102353	0.05														
101046	0.1														
100101	0.2														
100102	0.5													3 x	
100103	1														
100104	2														
100105	5														
100106	10														
100107	20	39	11	16	2	32	24	M3	5	12.5	-	X	-	3 x	0.4
100108	50	52	15	25	3	42	40	M4	5	25	-	-	X	3 x	0.7
100109	100	79	20	39	5	65	50	M5	6	21	-	-	X	3 x	1.7

Article-No. K-13	Nominal Force [kN]	Dimensions [mm]											Weight [kg]
		ØA	ØB	C	D	ØE	K	L	M	X	Y	Z	
103787	0.01	32	8	10	1.5	26	4	4	M2.5	X	-	-	0.2
103788	0.02												
102352	0.05												
102718	0.1												
100092	0.2												
100093	0.5												
100094	1												
100095	2												
100096	5												
100097	10												

Article-No. K-13	Nominal Force [kN]	Dimensions [mm]											Weight [kg]
		ØA	ØB	C	D	ØE	K	L	M	X	Y	Z	
100098	20	39	11	16	2	32	4.5	6	M3	-	X	-	0.3
100099	50	52	15	25	3	42	10	6	M4	-	-	X	0.5
100100	100	79	20	39	5	65	10	6	M5	-	-	X	1.2

Pin Connection

Electrical connection		
Excitation (-)	green	
Excitation (+)	brown	
Signal (+)	yellow	
Signal (-)	white	
Control signal (option)	grey	
Shield	shield	

Technical Data acc. to VDI/VDE/DKD 2638

Miniature Compression Force Sensor		K-13	K-13B
Nominal force $\mathbf{F_{nom}}$	kN	0.01 ... 100	
Accuracy class	% F_{nom}	0.5	
Rel. repeatability error in unchanged mounting position $\mathbf{b_{rg}}$	% F_{nom}	0.2	
Relative creep	% F_{nom}/30 min	<±0.1	
Rated characteristic value $\mathbf{C_{nom}}$	mV/V	1.00 [0.01 kN; 0.50] ±20%	
Input / output resistance $\mathbf{R_e/R_a}$	Ω	350	
Insulation resistance $\mathbf{R_{is}}$	Ω	>2*10^9	
Electrical connection		Cable, PVC, 3 m with free strands	
Reference temperature $\mathbf{T_{ref}}$	°C	23	
Rated temperature range $\mathbf{B_{T, nom}}$	°C	-10 ... 70	
Operating temperature range $\mathbf{B_{T, G}}$	°C	-30 ... 80	
Storage temperature range $\mathbf{B_{T, S}}$	°C	-50 ... 95	
Temperature effect on zero signal $\mathbf{TK_0}$	% F_{nom}/10 K	±0.2	
Temperature effect on characteristic value $\mathbf{TK_C}$	% F_{nom}/10 K	±0.2	
Maximum operating force $\mathbf{F_G}$	% F_{nom}	130	
Force limit $\mathbf{F_L}$	% F_{nom}	150	300
Breaking force $\mathbf{F_B}$	% F_{nom}	>300	>800
Permissible oscillation stress $\mathbf{F_{rb}}$	% F_{nom}	70	
Rated displacement $\mathbf{S_{nom}}$	mm	<0.15	
Material		Stainless steel	
Level of protection		IP65 [≤0.05 kN; IP60]	

Options

Article-No.	Description	
100218	Control signal	100 % F_{nom}
42828	Extended temperature range	-30 °C … 100 °C
42829	Extended temperature range	-30 °C … 120 °C [≥0.2 kN]
42830	Extended temperature range	-40 °C … 150 °C [≥0.2 kN]
100896	Nominal sensitivity adjustment	
103954	Calibration in kg or t	
107592	6-wire connection	

Calibrations

Article-No.	Description	
400628	Linearity diagram in accordance to factory standard	25 % steps
400170	Linearity diagram in accordance to factory standard	10% steps
400960	Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3	3 steps
400652	Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3	5 steps
400640	Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3	8 steps
	DAkkS-Calibration / Standard on request	

Accessories

Cable and input connector

Article-No.	Description
10323	Cable connector KS6 (6-pin series 581) incl. sensor mounting
10320	Cable connector KSSH15 (15-pin) incl. sensor mounting
43418	Input connector ZA9612FS (ALMEMO) incl. sensor mounting and connector calibration
49205	Input connector ZKD712FS (ALMEMO 202) incl. sensor mounting and connector calibration

Amplifiers

Examples of suitable amplifiers for the miniature compression force sensor K-13/K-13B:

LCV	SI-USB	GM 40	GM 80	GM 80-PA
				

Further suitable amplifiers you can find on our homepage under www.lorenz-messtechnik.de.